

## **REMARKS/ARGUMENT**

### **Regarding the Claims in General:**

Claims 57-62, 64-65, 67-78, 81-82, 84-86, 88-100, and 102-106 are now pending. By this communication, claims 59, 60, 81, 86, 88-89, 92, 94, 97, 103, and 104 have been amended to improve the form and/or grammar thereof, and to better conform to idiomatic English and/or U.S. claim practice. Claims 62, 84, 100, 102, and 104-106 have also been amended to better highlight certain features of the invention.

The amendments are not intended to, and will not narrow the scope of claims.

### **Regarding the Objections to the Claims and the Rejection under 35 U.S.C. 112:**

Amendments to claims 59, 62, 65, 92, 97, and 104 address the objections and the rejection stated in Sections 1 and 3 of the outstanding Office Action.

### **Record of Interview:**

Applicants' representative gratefully acknowledges the courtesy afforded to him during a telephonic interview held on December 22, 2003, and hereby confirms the accuracy of the Interview Summary (Paper No. 19) prepared by the Examiner. During the interview, proposed changes in claims 102 and 104 were discussed, but the Examiner was not persuaded that these claims, even as amended, distinguish over the prior art, mainly Peters U.S. Patent 5,550,376, which the Examiner regards as the principal reference. Further discussion of the amendments to the claims and specific reference to the arguments made during the interview are included in the discussion of the final rejection which follows.

### **Regarding the Prior Art Rejections:**

Reconsideration and withdrawal of the outstanding rejections under 35 U.S.C. 103 based on the Peters et al. U.S. Patent 5,550,375 (Peters), the Baxter U.S. Patent 4,111,717 (Baxter), the Grinberg et al. U.S. Patent 4,922,116 (Grinberg), the Dschen Published German application 41 10 653 (Dschen), and the Chen and Larsson articles are respectfully requested.

The Examiner has repeated, essentially without change, the rejections stated in the previous Office Action. Independent apparatus claim 102 remains rejected as unpatentable over Peters in view of Dschen and the Chen article. When this rejection was first given, applicants responded by pointing out that claim 102 recited a gas detector comprising a gas cell formed of a plastic base plate and a hollow plastic chamber extending from a surface of the base plate and an electromagnetic radiation detector formed on a three-dimensional topographical structure integral with the base plate and located *inside* the chamber.

In the final rejection, the Examiner referred to col. 6, line 64 through col. 7, line 12 of the Peters patent. This describes an example in which the shaped part includes additional cavities (not illustrated in Figs 2A and 3) situated in front of the radiation entrance and exit slits, and that when cover plate 12 is placed on the shaped part, the detectors are above these additional cavities. The Examiner is understood to be saying that because the gas cavity is contained in the same shaped part as the additional cavities, Peters' detector is inside the gas cavity (see outstanding Office Action, page 12, third paragraph).

The cited text, however, clearly shows that Peters' embodiment shown in Fig. 2A has three separate cavities, i.e., a first cavity within which the gas is located, a second cavity separated from the first cavity by the radiation entrance slit 3 and a third cavity separated from the first cavity by exit slits 4 and 10. Only the first cavity encloses gas. Detectors 8 and 11 are *outside* slits 4 and 10 respectively, and are therefore in the *third* cavity, which is not exposed to the gas.

During the interview, the Examiner took the position that there was nothing to preclude the gas being analyzed in Peters from being in the same space as the radiation detectors since a "slit" is defined as a *long, straight, narrow cut or opening*.

Applicant's representative answered by stating that it is inherent in the Peters structure that the detector is isolated from the gas cavity by some kind of barrier in view of the function being performed by the device, and in any event, there was no statement or suggestion in the patent that the gas was free to pass into the space where the detectors are located.

Expanding on the foregoing, it is respectfully submitted that one skilled in the art would not interpret the Peters patent in the manner proposed by the Examiner. Consider first the possibility that Peters' detectors are not in some kind of enclosed space. In that case, it would be absurd to

imagine the gas-containing (free) space not being sealed. Otherwise, toxic or explosive gas would be free to escape to the environment.

On the other hand, consider the alternative of Example 3 of Peters. This refers to Fig. 2A, which is described beginning at the bottom of column 6. One skilled in the art would understand this description to require at least a second closed cavity on the outside of the entrance and exit slits, *along with* the free space for the gas being tested (see Figs. 1A and 2A; col. 5, lines 3-4; col. 7, lines 13-21). There is no suggestion that the gas can anywhere other than in the free space, and in particular, not in the cavity with the detector.

Indeed, if gas were permitted to enter the additional cavity or cavities through the radiation slit, Peters would be rendered inoperative. Peters' device is intended to respond "as soon as the gas contains methane" (see col 6, lines 12-15). For that to be possible, the detector cavity and the free space for the gas must be isolated from each other. If gas from the free space could migrate into the detector cavity, the gases in the two cavities would have different instantaneous compositions, and thus different absorption spectra. The detector would see the composite of the absorption spectra, and accurate and immediate analysis would be impossible.

On the other hand, if there was some special reason to have the gas enter the second cavity, one skilled in the art could reasonably expect that the patent would have said so. The description of Example 3 cited by the Examiner does not say so, and nothing else in the patent does either.

The Examiner's interpretation of Peters' detector as being in physical contact with the gas being analyzed is thus technically unrealistic and contrary to fact. Moreover, the Examiner's attempt to equate applicants' detector in the gas cavity to Peters' detectors is a gross distortion of claim 102 and of the present invention.

Claim 102, as it appeared before the final rejection, clearly emphasized the location of the radiation detector *inside* the gas containing cavity. Nevertheless, as proposed to the Examiner during the interview, to advance the prosecution, claim 102 has been amended to describe the overall construction and the location of the radiation detector in somewhat different terms. Claim 102 now reads:

a flat base plate formed of a plastic material;

a gas cell formed by the base plate and a hollow body of plastic material extending from a surface of the base plate, the base plate and the hollow body being constructed to define an enclosure for receiving a volume of gas to be evaluated. . .and

an electromagnetic radiation detector which is formed integrally with the base plate and which is comprised of:

a three-dimensional topographical structure formed on the base plate and located within the enclosure . . .

While Peters does have a gas cell formed by a base plate and a hollow body extending from the base plate, and which form an enclosure for receiving a volume of gas to be evaluated, even if the Dschen/Chen sensor is used in Peters, the same fatal deficiency exists in the combination as exists in Peters alone. Claim 102 would not be met because the electromagnetic radiation detector would not be located *inside the gas cell*. As explained above, Peters' detector is outside the gas cell, and there is no suggestion in the Dschen application, the Chen publication, or in any of the other cited prior art to place the detector inside the gas cell.

Applicants further note that the amendments do not narrow the scope of claim 102 because they only use different words to describe more clearly features which were always present in the claim.

The changes in claim 102 are also reflected in claim 104. Again, it should be noted that these amendments do not narrow the scope of claim 104, but only describe with different words, features which were always present in the claim.

Thus, claim 104 now recites a method for forming a gas detector comprised of a gas cell comprised of a base plate and a hollow body attached to the base plate, and constructed to define an enclosure for receiving a volume of gas to be analyzed . . . and an electromagnetic radiation detector comprised of a three-dimensional thermoelectric array integral with the base plate. The method comprises the steps of:

forming a master structure as a pattern for the base plate, the pattern including, *in an area corresponding to a portion of the base plate which will be inside the enclosure*, a three-dimensional structure

corresponding to a topographical structure on which the thermoelectric array is to be mounted;

forming a master structure as a pattern for the hollow body;

forming the base plate and the hollow body using the respective master structures . . .

assembling the detector by attaching the hollow body to the base plate with the sensor positioned in the enclosure . . .

Peters does not have a radiation detector inside the gas cell, i.e., the enclosure for the gas, and motivation for modifying Peters et al. to produce such a structure is not found in Dschen/Chen, or in any other prior art.

Thus, even if Peters, teaches a "LIGA" process for making a master pattern, neither Peters alone, nor Peters in combination with any other prior art, teaches or suggests employing this process to form a base plate including a topological structure *which will be located inside the gas enclosure*. As the Examiner will recognize, the claim must be read as a whole. Claim 104 recites specific process steps, and also what the steps accomplish, i.e., producing a base plate which bears a radiation detector in a location which will be inside the gas enclosure when the device is assembled. The Examiner can not ignore that essential feature of the recited step.

Claims 81-82, 84-86, and 88-100, 103, and 105 are dependant on claim 102, and claims 57-62, 64-65, 67-78, and 106 are dependent on claim 104. These claims are patentable for all the reasons stated above. In addition, these claim recite features which, in combination with the features of their respective parent claims are neither taught nor suggested in the cited references.

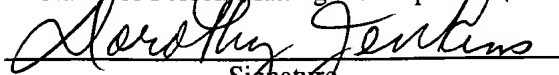
In view of the foregoing, favorable reconsideration, entry of the proposed amendment, and allowance of this application are respectfully solicited.

EXPRESS MAIL CERTIFICATE

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail to Addressee (mail label #EV 343718675 US) in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, Alexandria, VA 22313-1450, on February 4, 2004:

Dorothy Jenkins

Name of Person Mailing Correspondence



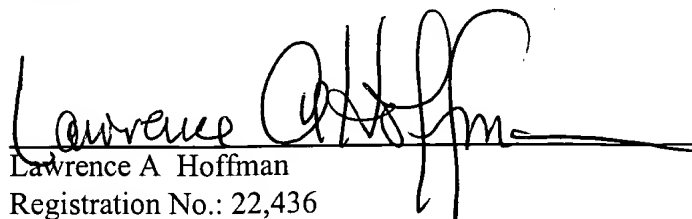
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February 4, 2004

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